



FACT SHEET

HUMBOLDT BAY NUCLEAR POWER PLANT

General

The Humboldt Bay nuclear power plant site is owned by Pacific Gas & Electric Company (PG&E) and consists of two fossil fueled units, two mobile gas turbines, and the decommissioned nuclear unit known as Humboldt Bay, Unit No. 3 (HBU3). The site, which consists of approximately 143 acres, may be seen from the bay side of Highway 101, off King Salmon Drive, just southwest of Eureka, California.

HBU3 was completed in 1963, and is the oldest commercial nuclear power plant in the state. The generating unit had a net electrical output of 65 MWe. The nuclear steam supply system consisted of a single cycle, natural circulation, boiling water reactor (BWR) and the associated control and support systems.

Commercial Operation

Commercial operation for the nuclear unit began in August 1963 and continued until July 1976, when it was shut down for normal refueling. During the refueling shutdown, a number of unresolved seismic issues led PG&E to keep the plant shutdown for an extended period of time. By 1985, all the fuel had been removed from the reactor vessel and the process was started to place the plant in a long term, (30 years) safe storage condition (SAFSTOR).

Decision to Decommission

Once the decision was made to shutdown the plant, significant modifications changed the facility from one designed to produce power to one supporting long-term fuel storage. These modifications included upgrading the pool and stack monitoring systems, modifying the security system, and enclosing the radwaste treatment systems. The SAFSTOR process was completed in July 1988, following the NRC's approval of the Decommissioning Plan.

Why SAFSTOR?

Some of the reasons PG&E selected SAFSTOR for HBU3 were:

- Personnel from the two operating fossil fuel units would be available to provide the necessary custodial surveillance for the entire period.
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HUMBOLDT BAY NUCLEAR POWER PLANT, Continued

Why SAFSTOR? (continued)

- The extended storage period would allow radiation levels to decay, resulting in about a 25% reduction in radiation exposures, and thereby simplify the handling and disposal of highly irradiated fuel assemblies.
 - It was anticipated that after 30 years of industry developments and experience, that there might be lower cost and safer methods developed for dealing with the remaining spent fuel assemblies.
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Federal Storage of Spent Fuel

The federal government has assumed responsibility for the long-term storage of spent fuel. Among the more promising options for long-term storage now under consideration by the federal government is a deep underground repository at Yucca Mountain, Nevada. This site has stable underground geologic formations where the spent fuel rods, placed in stainless steel canisters, could be stored indefinitely. Other sites are under review, but no site will be available before 2010.

Storing Spent Fuel

Until the federal government approves the construction and operation of a waste-storage disposal facility, the Humboldt Bay plant will continue to store the spent fuel assemblies on-site, in keeping with safety practices approved by the NRC. The 390 spent fuel assemblies are now kept and monitored under specially treated water in a stainless-steel lined, spent fuel pool in the fuel handling building (SAFSTOR).

Proposed ISFSI

PG&E has been reviewing the possibility and preparing the regulatory documents and applications to build an Independent Spent Fuel Storage Installation (ISFSI). An ISFSI is a blockhouse of massive concrete vaults. The spent fuel is taken from the spent fuel pool, dried and placed in sealed, stainless steel canisters. The canisters are then placed securely in the vaults.

Until a federal facility is available an ISFSI is considered to be the safest and most cost-effective method of long-term storage of spent fuel. Over a dozen such facilities are now operating within the U.S.

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HUMBOLDT BAY NUCLEAR POWER PLANT, Continued

Recent Changes The main plant stack, a 250-foot reinforced concrete structure, posed a missile threat to the spent fuel in the spent fuel pool during an earthquake. PG&E, working with the Nuclear Regulatory Commission (NRC) and local officials, agreed to remove the stack. Removal of the stack began in 1998, and required special preparations due to the fact that some radiological contamination on the inside of the stack was involved. Unlike later nuclear plants, Humboldt Bay had no containment chamber, but vented directly to atmosphere from the reactor room, through the stack. The tall, red colored stack, which is pictured, has now been removed. The remaining stacks at the site are for the fossil-fuel units, which are still operating.

Emergency Planning OES recently had the opportunity to review the most recent proposed changes to the Humboldt Bay, Unit 3 Emergency Plan (Revision 31). The current NRC approved Emergency Plan recognizes that none of the reasonably expected events that could occur at the plant require an offsite response. This is due, in part, to the extended decay time the spent fuel has experienced since reactor shutdown in 1976. An accidental release of radionuclides from the spent fuel pool would not be expected, in any case, to exceed offsite regulatory limits and the response would involve protective measures and actions for onsite personnel only. The public health and safety would not be affected.
